



Annual Report* of IGCP Project No. 610

IGCP 610 title: “From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary”

Duration: 2013-2017

Project leader(s):

1. Prof. Dr. Valentina Yanko-Hombach
I.I.Mechnikov National University, Odessa, Ukraine, 2, Dvorianskaia Street, Odessa 65082, Ukraine
Tel. +38-048-723-02-08
Email: valyan@onu.edu.ua
Avalon Institute of Applied Science, 976 Elgin Avenue, Winnipeg MB R3E 1B4, Canada
Tel.: +1 (204) 489-4569, Fax: +1 (204) 489-5782
Email: valyan@avalon-institute.org
2. Prof. Dr. Nikolay Panin
National Institute of R&D for Marine Geology and Geo-ecology – GeoEcoMar, Str. Dimitrie Onciul, Nr. 23-25, Bucharest RO-024053, Romania
Tel/Fax: +40 (21) 252-2594
Email: panin@geoecomar.ro
3. Prof. Dr. Tamara Yanina
Address: Moscow State University, Faculty of Geography, 1, Leninskiye Gory Str., Moscow, 119992, Russia, Tel.: +7(495)939-21-52
Fax: +7(495)932-88-36
Email: didacna@mail.ru
4. Prof. Dr. Olena Smytyna
I.I.Mechnikov National University, Odessa, Ukraine, 2, Dvorianskaia Street, Odessa 65082, Ukraine
Tel. +38-067-7863247
Email: smytyna_olena@onu.edu.ua
5. Prof. Dr. Mehmet Celal Özdoğan
Address: Department of Archaeology, Istanbul University, Istanbul 34132, Turkey
Tel. +90 532 4769526
Email: c.mozdo@gmail.com

Project Secretary:

Irena Motnenko, PhD
Avalon Institute of Applied Science, 976 Elgin Avenue, Winnipeg MB R3E 1B4, Canada
Tel.: +1 (204) 489-4569, Fax: +1 (204) 489-5782
Email: irmot@avalon-institute.org

Date of submission of report: 25/12/2013

1. Website address(es) related to the project

<http://www.avalon-institute.org/IGCP610/> - main
<http://www.geogr.msu.ru/science/projects/unesco/>
<http://www.geoecomar.ro/website/proiecte.html>
<http://archaeology-ethnology.onu.edu.ua/?p=1096>
<https://www.facebook.com/groups/180481035443572/>
http://vk.com/album115218532_181815723

2. Summary of major past achievements of the project

The project commenced on April 1, 2013. Since that time, it has served as a focal point for correlation of scientific data obtained by research projects dealing with environmental change and human response in a variety of settings from the Caspian to Mediterranean during the Quaternary. In general, nine months of IGCP 610 activity has been carried out in a strict agreement with the Working Plan [http://www.avalon-institute.org/IGCP610/work_plan.php]. The one exception was the creation of the GIS-aided Interactive Data Base that was postponed till the end of 2015.

The following achievements have been obtained by IGCP 610 participants so far:

- 1) Establishing the multidisciplinary team of scientists working on the project. The list includes more than 200 specialists from 18 countries; about 75% of whom are from developing countries surrounding the Caspian-Black Sea-Mediterranean Corridors. Developing world participation has been high in IGCP 610 activities, both through the direct conduct of scientific activities and through participation in the conference.
- 2) Creating a regularly updated IGCP 610 websites and mailing list of participants that contains 957 addresses.
- 3) Disseminating the basic ideas, main activities and achievements of the Project via social networks (Facebook for English and non-English-speaking audience, Вконтакте – for mostly Russian speaking audience) in order to bring together professionals, representatives of public bodies and broad public to promote the further studies in the frameworks of IGCP 610 Project.
- 4) Organizing the First Plenary Meeting and Field Trip of IGCP 610 in Georgia.
- 5) Publishing per-reviewed Conference Proceedings (183 pages) and the Field Trip Guide. The former contains 60 publications written by 151 authors from 19 countries.
- 6) Establishing the Reference List of main publication on the Project subject.
- 7) Correlating the Regional Stratigraphic Scales.
- 8) Collecting the regional Paleogeographic and Geological maps.
- 9) Field and laboratory work (for details see Chapter 3).

3. Achievements of the project this year only**3.1. List of countries involved in the project (please **indicate the countries active this year and make the distinction between:***

Azerbaijan, Belgium, Bulgaria, Canada, Georgia, Germany, Israel, Italy, France, Kazakhstan, Romania, Russia, The Netherlands, Slovakia, Turkey, UK, Ukraine, and USA (all active this year).

3.2. General scientific achievements and social benefits

1. Revision and integration of scientific materials available in a variety of languages in order to identify the main results of work to date as well as gaps in our knowledge, and to prepare an extensive Reference List. This task is crucially important, as most data are published in Russian and not easily accessible for foreigners.

2. Revision of the taxonomy and ecology of recent and fossil mollusks, foraminifera, and ostracoda [MFO] used for ecostratigraphic and paleoenvironmental reconstructions.
3. Catalogue of SEM pictures of MFO as well as spore and pollen from Pleistocene-Holocene sediments of the Ponto-Caspian region.
4. Development of a common geochronological frame necessary for correlating major events in human prehistory and history with global environmental changes.
5. In the Black and Marmara Sea region:
 - a. Study of the Eopleistocene geological sequence of Tsvermaghala Mountain that represents a stratotype of the Gurian Chauda; it possesses a thickness exceeding 1000 m deposited prior to the Matuyama-Brunhes Reversal (i.e., 780 ka BP) as well as archaeological sites of Lower to Upper Paleolithic age that include Dmanisi, Mashavera Gorge, Tetriskaro, Tsalka-Bedeni Plateau, Faravani Lake, Akhalkalaki, Diliska, Chiatura, Bondi Cave, Undo Cave, Djruchula Gorge, as well as the Neolithic site Samele Cave and the Medieval-Roman site Vardzia Cave.
 - b. Procuring and processing data on prehistoric cultures. Among the most outstanding results of recent work has been: defining the pace and trajectories of different ways of endemic movements arriving in Southeastern Europe; the development of a new cultural formation in the region around Marmara that would be a new core for further movement of early farming communities into Europe; defining the interaction of the migrant farmers with local hunter-fisher communities particularly in the region around Istanbul.
6. In the Caspian region:
 - a. Detailed study of chocolate clays in the Middle and Lower Volga region that have enabled the discovery of a direct correlation between their occurrence and morphology of relief. Material collected by the expedition is currently being studied using palynologic, lithologic, geochronologic, and malacofaunal and micropaleontologic methods.
 - b. Developing of a Holocene stratigraphic scale for the Iranian coast of the Caspian Sea.
 - c. Obtaining new material for paleogeographic reconstructions of the Caspian basin from biostratigraphic analysis of five boreholes recovered in the North Caspian. Two marine strata that are absent on the coasts were discovered. Also, obtained a series of new radiocarbon dates for sediments and events of the late Pleistocene in the Caspian.
 - d. A key geological section “Otkaznoe” located in the Tersko-Kumskaya lowland has been studied by paleomagnetic, palynologic and microterologic methods. Detailed reconstructions of landscape and climate evolution in the NW Caspian region were performed for the Pleistocene and Holocene.
7. In the Ponto-Caspian region, a comparative analysis of environmental evolution enabled a reconstruction of the last climatic macrocycle (MIS 5-1).

Social benefits: IGCP 610 activity has encouraged East-West dialogue by integrating eastern and western scientists into an international R&D community through scientific collaboration, workshops, and annual meetings. As a result, eastern scientists have obtained access to western laboratories and advanced scientific methods while western scientists have had access to a vast amount of material stored in the former USSR and Eastern Bloc archives or published in local languages.

3.3. List of meetings with approximate attendance and number of countries

1. IGCP 610 First Plenary Meeting and Field Trip, 12-19 October 2013, Tbilisi, Georgia: 151 contributors from 19 countries, 66% of whom are from developing countries.
2. IGCP 610 participated as the main partner in a workshop at Sozopol attended by 22 scientists (archaeologists, geologists, marine scientists) from Turkey and Bulgaria.
3. IGCP 610 was represented at the International Conference “Under the Sea: Archaeology and Palaeolandscapes”, 23-27 September 2013, Szczecin, Poland.

3.4. Educational, training or capacity building activities

So far IGCP 610 activities: (1) enabled participants to visit relevant sites in the Black Sea part of the study area under the guidance of local experts with on-site discussion of scientific issues; (2) formed a platform for young undergraduate and postgraduate students to benefit from international exposure and interaction with scientists from different parts of the world and varied specialties (for example, a project involving geoarchaeological research along Georgia's Black Sea coastline was initiated between Ilia State University, Georgia (Dr. Elashvili and young scientist Mr. Sukhishvili) and University of Cologne, Germany (Dr. Kelterbaum) in the frameworks of the project “Geoarchaeological research along Georgia's Black Sea coastline - landscape evolution at the boarder of the ancient Greek community” funded by the University of Cologne and Heinrich Böll Stiftung, Germany; (3) encouraged students to take new educational courses related to project topics, and to start working within a multidisciplinary approach that has been intensively discussed during the conferences; (4) involved about 25 students from Georgia in the organization of the First Plenary Meeting and Field Trip in Georgia in 2013, thus providing them with experience to develop their organizational skills and abilities in order to cultivate traditions of “European style” scientific fora as well as scientific discussion and informal meetings. This also promoted their interest in particular specialties and motivated them to learn foreign languages in order to improve communication skills with western colleagues; (5) promoted a multidisciplinary approach in paleoenvironmental studies, which has encouraged students in geology and geography to take archaeological courses and vice versa. This stimulated teachers to modify their curricula for undergraduate and graduate students (e.g., “Paleogeography,” “Paleoecology,” “History of the cultural exploration of the Northwestern Pontic region,” “Geoarchaeology of the Stone Age”); (6) promoted the preparation of several MA and PhD theses on subjects within the IGCP 610 project; (7) promoted the establishment of direct contacts between western and eastern youth, creating the background for better understanding of modern priorities in the developing world of science and humanities; (8) exposed the younger generation in developing countries to new analytical techniques and state-of-the-art data interpretation in the field of sustainable development and environmental risk protection, as well as human cultural development; (9) informed the wider public about the evolution of the environment during the last climatic cycle; (10) provided consultations on stratigraphy, paleogeography, palynology, macro- and microfauna to specialists from Russia, Azerbaijan, Ukraine, Iran, Bulgaria, the Netherlands, and Georgia.

3.5. Participation of scientists from developing countries, and in particular young and women scientists

Out of about 150 scientists contributing in the project, most of them attended the meeting and filed trip in Tbilisi (Fig. 1). About 50% are female scientists; 40 participating scientists are young, among whom 35% are female. About 66% of participants are from developing countries.



Figure 1. Group photo from the IGCP 610 First Plenary Meeting and Field Trip, Ilia State University, Tbilisi, Georgia, 2013.

3.6. List of most important publications per-reviewed publications published by IGCP 610 participants in 2013.

See Annex 1.

3.7. Activities involving other IGCP projects, UNESCO, IUGS or others

See Annex 2.

4. Activities planned

4.1. General goals

Efforts go on: (1) to maximize IGCP 610 exposure via diffusion of results in key international journals as well as social networks and updates of our web pages to ensure wide accessibility and increased interactive potential for project participants, the scientific community at large, relevant agencies, and the public; (2) to consolidate scientific achievements as a basis for developing a future strategy; (3) to continue to augment the funding base with upcoming and submitted research proposals through various funding agencies; and (4) to publish a special volume of *Quaternary International* devoted to the achievements of IGCP 610.

4.2. Tentative list of specific meetings and field trips (please list the participating countries)

The Second Plenary Meeting and Field Trip will be held in Azerbaijan on 11-18 October 2014 and will be hosted by the Geological Institute of Azerbaijan. The participating countries most certainly will include Azerbaijan, Bulgaria, Canada, France, Georgia, Germany, Greece, Iran, Italy, Kazakhstan, Turkmenistan, Romania, Russia, Turkey, U.K., Ukraine, and U.S.A.

5. What tangible improvements has your project obtained? (Besides publications, we are interested to hear about improvements to research, scientific contacts, policy implications, etc).

Within the framework of the Project, students of archaeology and geoarchaeology at the BA, MA, and PhD level have been taking an active part in training, developing the capacity to run projects, work in the field, and analyze material. There are also a number of post-doc participants taking part in various instalments of our project. Usually, there are more female participants than males, as most of our students are female. Besides, IGCP 610 activities, including the First Plenary Meeting and Field Trip in Georgia, promoted the establishment of direct contacts between western and eastern scientists, creating the background for better understanding of modern priorities in the developing world of science and humanities.

6. What kinds of outreach and training has your project undertaken? Please describe how this project specifically benefited women scientists, young scientists and/or scientists from developing countries.

See Part 3.4 for details.

7. What kind of public information (media reports, etc) has your project generated? And how do you evaluate their impact?

The media broadcast of IGCP 610, in particular the First Plenary Meeting and Field Trip that was held in Tbilisi, Georgia in 2013, attracted a lot of attention to the Project. Its activity was broadcast on 19 October 2013 by the Rustavi2 TV company, which is one of the leading TV companies in Georgia as well as photogalleries in social networks (see the Meeting Report for details) devoted to the most prominent archaeological and geological sites of the Caucasian part of study region. All together, these contributed to the dissemination and popularization of IGCP 610 ideas, in particular, the preservation of human heritage by re-evaluating and clarifying existing archaeological questions to arrive at a better understanding of the human response to environmental change in order to improve human living conditions, sustainable development, and wise management of the Earth as a human habitat.

8. Attach any information you may consider relevant

Annex 1. Selected references published in 2013-2014 (or are in press) by IGCP 610 participants.

- Akçar, N., Yavuz, V., Ivy-Ochs, S., Reber, R., Kubik, P.W., Zahno, C., Schlüchter, C. 2014. Glacier response to the change in atmospheric circulation in the eastern Mediterranean during the Last Glacial Maximum. *Quaternary Geochronology* 19: 27-41.
- Ayalon, A., Bar-Matthews, M., Frumkin, A., Matthews, A. 2013. Last glacial warm events on Mount Hermon; the southern extension of the Alpine karst range of the east Mediterranean. *Quaternary Science Reviews* 59: 43-56
- Bondarev I.P. 2013, The dynamics of leading species of recent facies in the Black Sea, *Geology and mineral resources of World Ocean*, 3(33): 78-93 (In Russian)]
- Bradley, L.R., Marret, F., Mudie, P.J., Aksu, A.E. and Hiscott, R.N. 2013. Constraining Holocene sea-surface conditions in the south-western Black Sea using dinoflagellate cysts. *Journal of Quaternary Science*, ISSN 0267-8179. DOI: 10.1002/jqs.2580.
- Brückner, H., Kelterbaum, D. 2013. The Aksu Çayı (Kestros River) coastal plain and the harbour of Perge – A palaeogeographic and geoarchaeologic study in ancient Pamphylia (SW Turkey). – In: Kalaitzoglou, G. & G. Lüdorf (Hg.): Petasos. Festschrift für Hans Lohmann. *Mittelmeerstudien*, 2: 341-353, Taf. 51-54; Paderborn.
- Collina-Girard, J, Bouzouggar, A. 2013. La longue préhistoire des brassages culturels en Méditerranée, in Collectif S/D Mostafa Hassani-Idriss, Chapitre 1. Bayard éditeur, 538 pages. ISBN-10: 222748697X et ISBN-13: 978-2227486973
- Collina-Girard, J. 2013. Karst Memories Above and Beneath the Sea : Marseilles and Its Continent Shelf During the Cosquer Cave Occupation. pp 229-239 in *Landscape and Landforms of France, World Geomorphological Landscape, M.Fort and M.F.André* (eds)., Springer eds, 274 pages,
- Efstratiou, N., Biagi, P., Karkanias, P., Starnini, E. 2013. A Late Palaeolithic site at Ouriakos (Limnos, Greece) in the north-eastern Aegean. *Antiquity* 87.
- Frumkin, A., Bar-Matthews, M., Davidovich, U., Langford B., Porat R., Ullman M., Zissu, B. 2013. In-situ dating of ancient quarries and the source of flowstone ('calcite-alabaster') artifacts in the southern Levant. *Journal of Archaeological Science* 41: 749-758.
- Gerasimenko N., Snezhko I. 2013. Rekonstruktsia prirodnoy sredy obitaniya cheloveka na pozdnepaleoliticheskoy stoyanke u s. Kamenka [Reconstruction of the environments of the Upper Paleolithic man at the Kamenka village site] *Starozhitnosti*, 11. Kharkiv, NTMT, p. 97-104. (In Ukrainian)
- Gulin, S.B., Artemov, Yu.G., Egorov, V.N., Evtushenko, D.B. 2013. The Dnepr Canyon: evidence for a continuous submarine channel link between the outer shelf and the deep-sea basin of the northwestern Black Sea. *Geo-Marine Letters* 33: 319-324.
- Gulin, S.B., Egorov, V.N. 2013. Self-purification of seawater: a measure for environmental regulation. In: *Seawater: Geochemistry, Composition and Environmental Impacts*. In: M.R. White (Ed.). New York, Nova Science Publishers (USA), pp. 93-126.
- Gulin, S.B., Egorov, V.N., Polikarpov, G.G., Osvath, I., Stokozov, N.A., Mirzoeva, N.Yu., Tereshenko, N.N., Gulina, L.V., Proskurnin, V.Yu. 2013. Radiotracers in the Black Sea: a tool for marine environmental assessments. In: *Isotopes in hydrology, marine ecosystems and climate change studies: Proceedings of the International Symposium, Monaco, 27 March–1 April 2011*. Vol. 2. Vienna: IAEA, pp. 535-543.
- Gulin, S.B., Mirzoyeva, N.Yu., Egorov, V.N., Polikarpov, G.G., Sidorov, I.G., Proskurnin, V.Yu. 2013. Secondary radioactive contamination of the Black Sea after Chernobyl accident: recent levels, pathways and trends. *Journal of Environmental Radioactivity* 124: 50-56.
- Izmailov, Ya. 2013. An attempt of quantitative estimate of the rate of vertical tectonic movements of sea coasts in Pleistocene (east of the Azov-Black Sea). *Proceedings of the All-Russian Conference on Quaternary Research: "Fundamental Problems of the Quaternary, the main*

- results of the study and directions for further research". Rostov-on-Don, p. 250-252. (In Russian)
- Izmailov, Ya. 2013. Geomorphological map of the Kuban River delta (scale 1:200,000). In: Geomorphology and Cartography, Materials of XXXIII Plenum of Geomorphological Commission of Russian Academy of Sciences. Saratov, p. 54-59. (In Russian)
- Izmailov, Ya., Schelinsky, V.G. 2013. Geological situation of the Early Paleolithic sites in the Southern coast of the Sea of Azov, Taman Peninsula. In: Ancient Caucasus: the crossroads of Europe and Asia, p. 20-39. (In Russian)
- Kaniewski, D., Van Campo, E., Guiot, J., Le Burel, S., Otto, T., Baeteman, S. 2013. Environmental Roots of the Late Bronze Age Crisis. PLoS ONE 8(8): e71004. doi:10.1371/journal.pone.0071004
- Hiscott, R.N., Aksu, A.E., Flood, R.D., Kostylev, V., Yasar, D. 2013. Widespread overspill from a saline density-current channel and its interaction with topography on the SW Black Sea shelf. *Sedimentology* 60: 1639–1667.
- Hoffmeister, D., Ntageretzi, K., Aasen, H., Curdt, C., Hadler, H., Willershäuser, T., Bareth, G., Brückner, H., Vött, A. In press. Quasi-realistic 3D model-based estimations of volume and mass of high-energy dislocated boulders in coastal areas of Greece by the Terrestrial Laser Scanning technique. *Zeitschrift für Geomorphologie N.F.*, Suppl. Vol.
- Mart, Y. 2013. Geodynamics of the Middle East domain since the Oligocene: Research summary. *Journal of the Geological Society of London* 170: 483-496.
- Mudie, P.J., Yanko-Hombach, V., and Kadurin, S. 2013. The Black Sea dating game and Holocene marine transgression. *Open Journal of Marine Science*, 2014, 4: 1-7; Published Online December 2013; <http://dx.doi.org/10.4236/ojms.2014.41001>.
- Özdoğan, M. 2013. Anatolia and the Balkans: archaeology”, I. Ness (ed.) *The Encyclopedia of Global Human Migration*. Blackwell Publishing Ltd.
- Özdoğan, M., N. Başgelen and P. Kuniholm (eds.). 2013. *The Neolithic in Turkey. New Excavations and New Research*, Vol. 5: Northwestern Turkey and Istanbul. Archaeology and Art Publication, Istanbul.
- Por, F. D., Dimentman, C., Frumkin, A., Naaman, I. 2013. Animal life in the chemoautotrophic ecosystem of the hypogenic groundwater cave of Ayyalon (Israel): A summing up. *Natural Sciences* 5(4A): 7-13.
- Porotov A.V. 2013. *Izmeneniye urovnya Chernogo moray na osnove geoarheologicheskikh indikatorov [Change of the Black Sea level on the base of geoarkeological indicators]*. *Vestnik Moskovskogo Universiteta. Seriya 5. Geographiya [Bulletin of the Moscow University. Geography.]* 1: 36–42 (in Russian).
- Rufin-Soler C., Mörner N.-A., Laborel J., Collina-Girard J.s (2013) *Submarine Morphology in the Maldives and Holocene Sea-Level Rise*. *Journal of Coastal Research*. In-Press.
- Seeliger, M., Bartz, M., Erkul, E., Feuser, S., Kelterbaum, D., Klein, C., Pirson, F., Vött, A., Brückner, H. 2013. Taken from the sea, reclaimed by the sea: The fate of the closed harbour of Elaia, the maritime satellite city of Pergamum (Turkey). *Quaternary International* 312: 70-83.
- Smyntyna, O. 2013. *Environment in Soviet and Post-Soviet archaeology Humans and environment: new archaeological perspective for the twenty-first century*. Oxford: Oxford University press, p. 27-44.
- Smyntyna, O. 2013. Mesolithic settlements of the Ukrainian Steppes: migration as sociocultural response to a changing world. In *British Archaeological reports, International series. Comparative Archaeology and Paleoclimatology: sociocultural responses to a changing world*, No 2456, p. 93-98.
- Smyrnova L.L., Rjabinin A.I. 2013. Microbiological and Elemental Composition of Aerosols Falling on the Crimean Coast of the Black Sea. *Paleontological Journal* 47(10): 1198–1204.
- Stock, F., Pint, A., Horejs, B., Ladstätter, S. & H. Brückner (2013): In search of the harbours: New evidence of Late Roman and Byzantine harbours of Ephesus. – *Quaternary International* 312:57-69, <http://dx.doi.org/10.1016/j.quaint.2013.03.002>
- Svitoch A., E. Badyukova, B. Sheikhi, T. Yanina. 2013. Geological - geomorphological structure and recent history of the Iranian coast of the Caspian Sea. *Doklady Earth Sciences* 451(2): 843–848.

- Svitoch A., Makshaev R. 2013. Noveyshaya tektonika Manyhskoy depresii [Recent tectonics of the Manych depression]. *Geomorphologiya* [Geomorphology] 1: 43–53. (in Russian).
- Svitoch A.A. 2013. The Pleistocene of Manych straits: their structure, evolution, and role in the Pont-Caspian basin development. *Quaternary International* 302: 101-110.
- Tchepalyga A., Gerasimenko N., Gladyshevskaya M., Kiosak D., Pirogov A., Tchepalyga R. 2013. Stratigrafia final'nogo pleystotsena i paleolita doliny Dnestra (verhi razreza Roxolany) i Budzhaka [Stratigraphy of the Final Pleistocene and Paleolithic in the Dniester valley (the top part of the Roxolany section) and Budzhak Area]. In: *Lesovy pokryv Pivnichnogo Prychornomor'ya*. Lublin, KARTPO, p. 210-220.
- Tushabramishvili, N. 2013. The Role of the Western Georgian Refuge zone on expansion of Neanderthals and Anatomically Modern Humans. Impact of Tectonic and Volcanic Processes on Human being in Middle and Upper Paleolithic. The Bulletin of the Conference: "The role of the Southern Caucasus on early human evolution and expansion – refuge, hub or source area? ». In press.
- Tushabramishvili, N., Meladze, T., Sukhishvili, L. Georgia on the Crossroad. Cultural Exchanges and Evidences for Different Distance Contacts in Middle and Upper Paleolithic. *Prehitoire Europeenne*, Liege. In press
- Unkel, I., Schimmelmann, A., Shriner, C., Forsen, J., Heymann, C., Brückner, H. 2013. The environmental history of the last 6500 years in the Asea Valley (Peloponnese, Greece) and its linkage to the local archaeological record. – *Zeitschrift für Geomorphologie*, Supplementary Issue (in press) (DOI: 10.1127/0372-8854/2013/S-00160).
- Vaks, A., Woodhead, J., Bar-Matthews, M., Ayalon, A., Cliff, R., Zilberman, T., Matthews, A., Frumkin, A. 2013. Pliocene-Pleistocene climate of the northern margin of Saharan-Arabian Desert recorded in speleothems from the Negev Desert, Israel. *Earth and Planetary Science Letters* 368: 88–100.
- Willershäuser, T., Vött, A., Brückner, H., Bareth, G., Nelle, O., Nadeau, M.-J., Hadler, H., Ntageretzis, K. 2013. Holocene tsunami landfalls along the shores of the inner Gulf of Argostoli (Cefalonia Island, Greece). *Z. Geomorph. N.F. Special Issue* (in press) (DOI: 10.1127/0372-8854/2013/S-00149).
- Yanina T. 2013. Evolyutsiya prirodnoy sredy Ponto-Kaspiya v usloviyah globalnykh izmeneniy klimata pozdnego pleistotsena [Environmental evolution of the Ponto-Caspian under global climate change during the late Pleistocene] // *Vestnik Moskovskogo Universiteta. Seriya 5. Geografiya*. [Bulletin of the Moscow University. Geography] 1: 3–16 (in Russian).
- Yanina T. 2013. Neopleistotsen Ponto-Kaspiya: biostratigrafiya, paleogeografiya, korrelatsiya [The Ponto-Caspian Neopleistocene: Biostratigraphy, Paleogeography, Correlation]. *Moscow State University*: 1-264 (in Russian).
- Yanina T. 2013. Biostratigraphy of the middle and upper Pleistocene of the Caspian Region. *Quaternary International* 284: 85–97.
- Yanko V., Mudie Peta J., Kadurin S., Larchenkov E. Holocene marine transgression in the Black Sea: New evidence from the northwestern Black Sea shelf. *Quaternary International*, *Quaternary International*, in press. Available online 3 September 2013.
- Zaidner, Y., Frumkin, A., Porat, N., Tsatskin, A., Yeshurun, R., Weissbrod, L. 2013. A series of Mousterian occupations in a new type of site: The Nesher Ramla karst depression, Israel. *Journal of Human Evolution*, in press.

Annex 2. Selected projects closely related to IGCP 610 in which participants work:

- Project № 11-05-00093 «Caspian region: Peculiarities of development of the environment under climate and sea level change,” supported by the Russian Foundation for Basic Research.
- Project № 12-05-01052 «Evolution of the relief of the Azov and Black Sea coast, climate, and sea level change: Comparative analysis and chronology of environmental processes for the last 20 ka,” supported by the Russian Foundation for Basic Research.
- Project № 13-05-00086 “Pont-Manych-Caspian oceanographic system in the late Pleistocene: Systematics and correlation of events, evaluation of character and degree of interaction, paleogeographic consequences in the region,” supported by the Russian Foundation for Basic Research.

Form V

- Project № 13-05-00242 “Radioisotope justification of age and synchronization of the Quaternary deposits of the Ponto-Caspian,” supported by the Russian Foundation for Basic Research.
- Project № 13-05-00625 “Peculiarities of the evolution of relief in the Northern Caspian region in the late Pleistocene: Main stages of the development, chronology, and correlation with climatic rhythms in the Black Sea-Caspian region,” supported by the Russian Foundation for Basic Research.
- Project № 12-05-31281 “Khvalynian epoch in the history of the Caspian region: Paleoclimates and environmental evolution,” supported by the Russian Foundation for Basic Research.
- Project WAPCOAST “Water pollution prevention options for coastal zones and tourist areas: Application to the Danube Delta front area,” supported by the BLACK SEA ERA.NET - Pilot Joint Call “Networking on Science and Technology in the Black Sea Region.
- Project MAREAS “Black Sea Joint Regional Research Centre for Mitigation and Adaptation to the Global Changes Impact,” Joint Operational Programme “BLACK SEA 2007-2013.”
- Project № Ф28/428-2009 “Northern Black Sea Region under GCC: environmental changes during the last 20 ka and forecast for the present century,” supported by the Ukrainian Foundation for Basic Research and the.
- Project ECOST-MEETING-TD0902-090310-001280 SPLASHCOS “Submerged Prehistoric Archaeology and Landscapes of the Continental Shelf.”
- Project “Geoarchaeological research along Georgia's Black Sea coastline - landscape evolution at the boarder of the ancient Greek community” funded by the University of Cologne and Heinrich Böll Stiftung, Germany.
- Project “Paleogeographical evolution of the Gulf of Taman with special regard to the underwater excavations in Phanagoria” in cooperation with Russian Academy of Sciences (Archaeology) funded by the University of Cologne and Russian Foundation for Basic Research.